Lefferts Tide Mill
(Van Wyck Mill)
Huntington
Suffolk County
Long Island, New York

HAER No. NY-106

HAER
NY
52-LONHA,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Washington, D. C. 20240

HAER
NY,
52-LONIA,
2-

HISTORIC AMERICAN ENGINEERING RECORD

LEFFERTS TIDE MILL
(Van Wyck Mill)
LONG ISLAND SURVEY

NY-106

Location:	Huntington, Suffolk County, Long Island, New York UTM: 18.630970.452856 Quad: Lloyd Harbor
Date of Construction:	ca. 1795. Equipment altered through the nineteenth century.
Builder/Designer:	Unknown
Present Owner:	Unknown
Present Use:	Not in use
Significance:	The Lefferts Mill is a fine example of a tide mill, a relatively rare engineering structure. It is also important as an example of a typical Long Island water-powered grist mill in its equipment, process, and economic niche within the Island's history of gristmilling. Built around 1795, the Lefferts mill was operated until the 1870s. The changes made in its machinery during its useful lifetime, as well as during its economic decline, reflect changes taking place in the grain and flour industry of Long Island during those eighty years.
Historian:	Christine M. Daniels, 1975
Transmitted by:	Jean P. Yearby, HAER, 1984

The Van Wyck (Lefferts) Tide Mill stands in Suffolk County, an area that was one of New York's major wheat and flour producing regions during the eighteenth and early nineteenth centuries. Until the middle of the 1800's, flour milling in the county was a decentralized industry performed primarily by small gristmills serving the surrounding areas and New York City.[1] After that date, larger and more efficient steam roller mills began to replace the smaller mills powered by water and wind, by producing a finer, whiter flour at a lower cost.[2] Faced by competition with these mills, and by declining wheat and corn production in the area, the small wind and water mills that dotted the island were soon obsolete.

History

The Van Wyck (Lefferts) Tide Mill in Huntington was built sometime between 1793 and 1797, when the demand for Long Island's wheat was booming.[3] In 1793, Coles Wortman, a prominent officeholder and slaveowner[4] who lived in the neighboring town of Oyster Bay, owned the land upon which the mill was built. He had acquired it from John Sammis, a miller whose gristmill had formerly stood on the site; it was not a land grant from the town.[5] He petitioned the trustees of the town for the right to build a gristmill on this property, and on 2 April, 1793, they "granted that the prayer of Coles Wortman's petition be granted respecting his making a Mill Dam and erecting a Grist Mill...." He never built it. According to the tax rolls of the town of Huntington, he sold the unimproved property to his father-in-law and brother-in-law, Abraham

Van Wyck Senior and Junior, in December of 1793.[7]

The mill commonly referred to as the Lefferts Mill had been built by May of 1797. On 2 May, 1797, the elder Van Wyck sold "all the one moiety or equal half of a certain Gristmill, Mill Pond and Mill Lot... and also the one equal half of the utensils thereunto belonging..." to the younger Van Wyck for 250 pounds.[8] The mill was apparently finished by the date of sale, and was certainly complete by 1798, when it passed out of the hands of the Van Wyck family. In addition to the reference to "utensils" in this title, the two horses that support the hoppers in the mill today are stamped "A. Van Wyck."

In 1798, Van Wyck Junior sold one half of the mill to Samuel and Henry Lefferts for $2,150 "good current money of the State of New York."[9] During the next fifty years, the mill was owned in shares by a number of individuals. (See Appendix A.) The mill was sold in four shares for most of its useful lifetime; this raised capital for its operation, and spread the risk in case of failure.[10] Between 1842 and 1850, however, one man, a miller named Jarvis Lefferts, acquired all four shares of the mill.[11]

There are no business records of any kind concerning the operation of the mill prior to 1860. It is, therefore, impossible to determine exactly how the mill functioned during its first six decades. It may have operated at least part time as a mercantile mill while the Van Wycks and the Lefferts brothers owned it. Mercantile mills were managed by a proprietor who purchased grain outright, made flour from it, and either

marketed the finished product himself or sold it to a flour merchant in a nearby port. A custom or country mill ground wheat and bolted flour for the farmers in the area, with the miller usually taking one-tenth of the finished product as his toll.[12] The evidence indicates that the Lefferts Mill was a mercantile mill. A custom mill was usually built on land granted to a miller by a town during the eighteenth century on Long Island.[13] Coles Wortman purchased the land privately from John Sammis. In addition, the permission given Wortman to build his mill, which later transferred to the Van Wycks, contained no stipulations concerning the miller's duty to the town of Huntington, the size of the miller's toll, or provisions for the mill to revert to the town if it ceased to grind, stipulations included in most grants for custom mills.[14] Finally, neither Coles Wortman nor the Van Wycks were country millers. They were wealthy and prominent landowners who held offices and slaves, and had money to invest in ventures they considered profitable.[15] Abraham Van Wyck, Junior, was identified in legal documents and Federal Censuses as a farmer, not a miller, and both he and his father-in-law acted as bankers in providing mortgage loans to people in the area.[16] It is unlikely that these men would have had a mill built solely to extract the one-tenth share of flour that was traditionally the custom millers toll.[17]

It is clear that the Lefferts Mill had fallen drastically in value by 1850, when Jarvis Lefferts, miller, purchased all of it. In 1798, one-half of the mill sold for $2,150.[18] The entire mill, then was probably

worth about $4,300. When Jarvis Lefferts purchased the entire mill between 1842 and 1850, he bought all four shares for a total of $3,637.[19] The latter figure is probably inflated beyond the actual value of the mill at this time; when Lefferts bought shares from his relatives, he paid them nearly twice as much as he paid people who were not related to him. This decline in value points to a decline in the economic importance of the mill. In fact, by examining the Federal Censuses of Industry for 1860 and 1870, it is obvious that the Lefferts Mill, like many other small Long Island gristmills at this time, was a marginal operation.

The Federal Censuses for 1860 and 1870 both listed a gristmill run by Jarvis Lefferts in Huntington. In 1860, the Lefferts Mill ground 7500 bushels of grain, including 4000 bushels of wheat, 500 bushels of corn and 3000 bushels listed as "feed." These materials were worth a total of $7,515. The mill produced a total of 800 barrels of wheat flour, 167 bushels of corn meal, and 3300 bushels of feed, worth a total of $8,079.[20] Lefferts therefore cleared only $564 from the operation of of the mill, which was probably working no more than one-third of the year.[21]

The 1870 Federal Census listed the Lefferts Mill again.[22] By that time, it was clearly a custom mill. A notation in the entry stated "Marshal says this is a custom mill taking only one-tenth in toll. Capacity 30 bu/day."[23] Although this estimate of capacity was contradicted by another directly above it, which stated that the mill could grind sixty

bushels a day,[24] it actually ground only 3000 bushels of grain in twelve months,[25] less than half of what it had ground ten years earlier. The grain was worth $2,900. The finished product, 600 barrels of flour and 600 pounds of feed, was valued at $3,720.[26] Thus the value added to the raw materials used at the Lefferts Mill was $820 in 1870. If Lefferts' only wage was the fraction of the product he took in toll, he earned only $82 for the entire year.

The Lefferts Mill also experienced a decline in the share of Huntington's grain that it processed. In 1860, the mill ground approximately 7.8% of the wheat and corn grown in Huntington that year,[27] while in 1870 it ground only about 2.7% of these products.[28]

This decline was symptomatic of the dramatic changes taking place in the milling industry of Long Island. By the mid-nineteenth century, large steam-powered roller mills began operations in Suffolk County at Southampton, Southold, East Hampton, Setauket, and Port Jefferson.[29] These mills could produce ten to twelve times more flour per day than a water-powered gristmill,[30] and with this introduction of steam power, virtually all the small mills in Suffolk County had become either custom mills or marginal businesses.[31]

Tradition indicates that by 1893, the Lefferts Mill was shut down. The mill was not listed in the Federal Census of Industry for 1880, and although he lived until 1882, Jarvis Lefferts was no longer listed as a miller in the Federal Population Census Schedules after 1870. Therefore, the mill may have been closed as early as the 1870's. It was certainly

inoperable by 1903, for a picture of it published in that year shows the water wheel badly damaged, and the mill presumably abandoned.[32]

Like so many other small gristmills throughout the county and the state, the Lefferts Mill could not compete with larger, more efficient steam roller mills. The shift in Long Island's agriculture from grain to market garden vegetables during the second half of the nineteenth century[33] also hastened the decline of the smaller mills by reducing the supply of grain readily available to them. The Van Wyck (Lefferts) Tide Mill could no longer fill a viable role in the economic system of Long Island and so eventually faded out of existence as a business.

Site and Structure

The northern coast of Long Island was ideally suited for the construction of tide mills. Small inlets and coves with narrow outlets to the Long Island Sound were common. Across these outlets, dams with tide and sluice gates were built to utilize the power of the tides. The Van Wyck (Lefferts) Tide Mill was built on such a harbor. The earthen dam that created what is now Mill Cove Pond was about 400 feet long and between 20-30 feet in width. Tide gates for the pond were 12-15 feet wide and located about 175 feet to the north of the mill in the center of the dam. They were hinged at the top to allow tidal water to enter the pond. Sluice gates to control the flow of water to the waterwheel were about 8 feet wide and located just south of the mill in a direct line with the wheel.

Tide mills had an advantage over other water-powered gristmills in that as many mills could be built on the ocean as there were small inlets to accommodate them: they required only a sufficient tidal flow to allow them to impound the water necessary to run the mill. Mills powered by small streams were subject to the vageries of drought and temperature, and could be located only where there was a sufficient fall in the stream. The endless quarrels fought over riparian rights in New England towns[34] had little relevance to an area, like Huntington, that could power a number of grist mills with the tide. In fact, there was at least one other tide mill on Huntington Harbor while the Lefferts Mill was in operation.[35]

The mill itself is a three-story wood structure with an attic and a basement. Constructed of heavy timber throughout, brick-fill half-timbering is employed only on the interior of the first floor. The framing system in a water-powered gristmill differs from that in other industrial buildings, only in the extra reinforcement of the hursting, the timber framework which supports the mill stones and encloses the main gearing. The basement is constructed with unbonded stone walls and piers, while the building is framed with heavy timber columns and beams, laid up in evenly spaced bays.

The mill itself, approximately 30x40 feet, is divided on the first and second floors into 4 bays longitudinally and 2 bays transversely, thus eliminating any need for long-span beams or girders. The third floor follows the pattern of the lower two in its 4 longitudinal bays,

but is divided transversely into a single wide bay in the center and two narrow side bays. The columns of the third floor are mortised into the beams below, and knee braces on the second floor carry column loads to the exterior bearing wall. The rafters begin about 3 feet above the third floor, and continue up through the attic floor to form a simple gable roof.

An unusual feature of this mill is the half-timbering with brick infill on the first floor. Although most of the bricks appear to be fabricated later than the mill, many of them are of unusual size and evidently sunbaked. Precisely why this type of construction was used on the first floor is uncertain. The bricks did serve as an effective insulator and may have been intended for that purpose, since the meal and flour were usually stored on the first floor.

The hursting which occupies the southwest corner of the building, has its own heavier framing system which functions independently, carrying the weight of the grind stones located on the second floor. In addition to this original framing, new timbers have replaced the original bearing blocks, these later timbers probably installed when the axle, pit wheel and water wheel were removed shortly after the turn of the century.

Timbers throughout the building, including those in the hersting, are joined with mortise and tenon joints, and with variations of this basic technique. Complex connections exist where as many as 6 separate timbers, 2 columns, 2 beams and 2 girders are

each joined to the rest in a system of mortises and tenons.[36] Accuracy in joining these timbers was obtained by test assembling the members on the ground and then numbering them. The numbered timbers were then reassembled during the actual construction of the building. Roman numerals carved into the timbers throughout the solid frame of the mill prove the soundness of the system.[37]

Machinery and Power Transmission

The Lefferts Mill represents a relatively rare and fast disappearing technology. Except for the tide gates and waterwheel, most of its equipment was similar to that of any water-powered gristmill.

The mill stands on a man-made eastern dam with Huntington Harbor to the east and Mill Cove Pond to the west. This dam has two openings: the tide gates and the sluice gate. As the tide rose in the harbor the top-hinged tide gates would swing back and up, allowing the water to enter the mill pond. As the tide began to recede, the shift in the flow of the water pushed these gates shut, thus impounding the water from Huntington Harbor in Mill Cove Pond. When, after two or three hours, the tide in the harbor had ebbed enough to create a significant difference between the height of the water in the pond and that of the water in the harbor, the sluice gate was opened. This gate controlled the flow of water to the waterwheel, and, once open, the mill began operation. About four hours later, when the pond and harbor levels were nearly equal, the mill ceased operation and awaited the next ebbing tide.

When the sluice gate to the south of the mill was opened, and the water ran back into the harbor, it struck the floats at the bottom of the undershot waterwheel. This wheel was mounted on the same axle as the pit wheel, located under the hursting in the cog pit. The pit wheel meshed with and turned the wallower, the first driven gear in the mill, mounted under the great spur wheel on the main shaft. This great spur wheel was geared into three lantern pinion gears, two of which, called stone nuts, drove the mill stones, while the third or crown wheel ran the auxiliary equipment.

Each stone nut had two slip cogs or rounds. These cogs, when removed, created a gap in the pinions, and thus, disengaged the stones from the great spur wheel. The shafts for these stone nuts, through the lower stones (bedstones) and terminated in the center of the eye of each upper stone (runner-stone). The spindle for the millstones were attached by a mace-head, now missing, to a rynd. The rynd was an iron hub in the eye of the runnerstone with three prongs that were attached to the stone itself. As the stone nut and stone spindle turned, they caused the runnerstone to revolve about the stationary bedstone.

The height of the stone nut controlled the distance between the grist stones, and hence, how finely they ground the grain. This distance was changed at will,by means of a tentering gear.[38] In the Lefferts Mill, this gear consisted of a lighter staff outside the hursting attached to a lever inside the cog pit where the heavy gearing is located. This lever raised or lowered the bridge tree under each of the stone nuts

as the lighter staff was adjusted. The movement of the bridge tree then raised or lowered the stone nut and stone spindle, which made fine adjustments in the distance between the runnerstone and the bedstone, and thus in the fineness of the flour. The mill currently lacks one of these bridge trees in the cog pit. It has been recently replaced by a timber brace.

The vertical shaft from the third lantern pinion transmitted power to a crown gear on the second floor, which meshed with a second, vertical trundle wheel mounted on a drive shaft with a pulley. A belt from this pulley ran to a large drive shaft, and a belt from the latter probably powered the bolter, which sifted flour into separate grades after it was ground. Another belt from the same shaft probably powered three smaller overhead drive shafts on the same floor, as well as the second floor screener, which sifted debris from the grain before it was ground. Exactly what the three smaller shafts powered could not be determined. The large shaft apparently was installed much later than 1795, but something similar to it may have been installed when the mill was built.

The vertical shaft from the third lantern pinion continued up to the third floor, where it powered a smutter, a machine which removed a fungal growth called smut from the wheat. A belt from a small pulley on the auxiliary equipment shaft transferred power to another small pulley mounted on a second vertical shaft. Directly above this second pulley, mounted on the same shaft, a much larger pulley with a second belt transmitted power to the smutter itself. By driving through a series of

smaller to larger pullies, the necessary belt speed required by the smutter was produced. The smutter cleaned the wheat by spinning it at high speed against a rough surface of either stone or metal. This scraped the smut off the grain, and both grain and smut were then thrown through a blower. The smut was blown away while the heavier grain fell into a garner situated over the grist stones, which held it until it was ground.[39]

The smutter was an improvement added to the mill during the last half of the nineteenth century. A smaller screener on the third floor was evidently added at about the same time as a replacement for the screener on the second.

A second cup elevator system of the type first employed by Oliver Evans around 1785[40] probably ran between the first and second floor of the mill. The date of installation for the present cup elevator system in the Lefferts Mill is uncertain, although there is evidence of a system predating the present one, the earlier system employing relatively large leather buckets rather than the small metal cups of the later system. Archimedean screws conveyed the meal through the mill laterally when such movement was necessary, although none of these devices is currently in situ.

Process Flow

The equipment in the mill, with the single exception of the tidegates, is representative of the technology employed in a waterpowered grist mill

built in the late eighteenth century and used until the late nineteenth. The method by which the wheat was ground into flour was equally representative. While a written record of the actual process for this particular mill has not been found, it functioned like other waterpowered gristmills of the time period.

On arrival, the grain was lifted to the third floor with a sack hoist located at the west end of the building. Before the installation of the smutter, it was dumped directly into a chute on the third floor that fed the screener on the second. After the smutter was added, it was screened on the third floor and dropped through a chute to the second. It then moved laterally, possibly by hand,[41] to the cup elevator next to the smutter, which carried it upstairs to be smutted.

Following that process, the wheat fell into the garner above the stones, which had a chute with a small wooden gate to regulate the amount of grain that fell into the mill stones.[42] Both the second floor screener and the garner fed the grain into the grist stones through wooden troughs. These directed the flow of the grain into a hopper which rested on a frame support called a horse. The horse, in turn, rested on the hoop or tun, the wooden case that covered the grist stones. The grain fell from the hopper into the stones through the shoe, a tapered wooden trough, which vibrated against a damsel, now missing. The damsel was a three-pronged iron fork which straddled the rynd of the runnerstone and, tapping against the feed trough, helped maintain an even flow of grain to the stones.

After the grain had been ground, it was thrown against the sides of the hoop by centrifugal force and fell through meal spouts to the first floor. It was lifted to the second floor again, by hand or with the help of a cup elevator,[43] where it was bolted, or sifted, into varying grades of flour, usually superfine, fine, middling, and, in the case of corn, feed. After this culling process, it fell to the first floor through chutes once again where it could be bagged or barrelled for transport by water or by land.

The Lefferts Mill ground both wheat and corn[44] and at least one run of stones in the mill were French Burr stones, which produced a very fine grade of flour.[45] These stones had to be dressed often; that this, they had to have the furrows in their faces that sheared the wheat sharpened frequently, if the mill were running constantly. To accomplish this, the runnerstone was lifted off the bedstone with a crane. This stone could then be turned over to have its furrows dressed, while the bedstone was dressed where it lay.

The Van Wyck (Lefferts) Tide Mill was a typical Long Island waterpowered gristmill in its process flow, machinery and equipment, structure, and history. Its tide gates set it apartment from waterpowered mills throughout America, but these mills were not as uncommon on the Northern shores of Long Island as they were elsewhere. As one of the very few remaining examples of a type of mill that was once indigenous to the island, this mill deserves recognition as an illustration of a vanished chapter of Long Island's industrial history.

FOOTNOTES

1 For the size of these mills, see the United States Department of Commerce, Bureau of the Census: 1860 and 1880: Agricultural Statistics. For years prior to 1860, the New York State Library in Albany, Manuscript and History Collections has the manuscript for the United States Census of Industry 1840-1890 on microfilm. Most of the wind and water powered gristmills listed in the censuses employed only one male, or, at most, one man and one boy. For the distribution of their product, see Percy W. Bidwell and John I. Falconer, A History of Agriculture in the Northern United States: 1620-1860, (Washington, D. C., Carnegie Institution, 1925; reprint edition, Clifton, New Jersey, Augustus M. Kelley, 1973), p. 101. See also Robert G. Albion, The Rise of New York Port: 1815-1860. (Charles Scribner's Sons, 1939) (Great Britain: Newton Abbott, Devon, David and Charles, 1970), p. 80.

2 The manuscript of the United States Census of Industry is the most valuable source of information oncerning the steam mills in Suffolk County. Two steam mills, one in East Hampton, one in Port Jefferson, appear on the rolls about 1850, and immediately grab a disproportionately high share of the county's wheat supply. The small wind and water mills then begin to decline. For general information on steam gristmilling in America, see William Carter Hughes, The American Miller and Millwright's Assistant, A New Edition, Revised With Much Additional Matter, (Philadelphia: Henry Carey Baird, Industrial Publishers, 1873), pp. 188-195, esp. p. 189.

3 Albion discusses the end of this boom in New York Port, pp. 92-93. Bidwell and Falconer discusses the New York wheat and flour trade, including Long Island, in History of Northern Agriculture. pp. 134-144 and 237-238. Over one-third of the gristmills standing on Long Island today were built in the brief period 1783-1806, when this demand was at its peak. John A. Gable, et. al. Long Island: An Inventory of Historic Engineering and Industrial Sites, (Washington, D. C. Historic American Engineering Record, 1974).

4 Wortman is listed in the Population Census for the State of New York, 1790, as owning three slaves. Manuscript of Population schedules for the State of New York, 1790, Suffolk County, Township of Oyster Bay, National Archives Microfilm. He freed at least one slave in 1805, Oyster Bay Town Records, Volume 7, p. 364. According to the town records, he also held various offices in the town government, including Supervisor (1798 and 1804), Collector Security (1799) and Town Committeeman (1800). Oyster Bay Town Records, Volume 8, pp. 4, 7, 9-10, 20-21.

Footnotes, cont'd.

5 Although there is no deed for this transaction, there is a legal release transacted between Abraham Van Wyck and John Sammis in the possession of Gwendolyn Gwynne DeClairville, present owner of the Lefferts Mill. This release describes the land where the gristmill is located and also calls it "a certain point of land which the said John Sammis sold to Coles Wortman..." In addition, no grant of land from the town to Coles Wortman is listed in the Book of Land Grants by the Trustees of the Town of Huntington, 1688-1802, or in the Index to this volume. There are no obvious gaps in this book, so it is unlikely that Wortman's grant was omitted. The Grant Book and the Index are kept at the Town Historian's Office in Huntington.

6 Huntington Town Records, Including Babylon, Long Island, New York, 1776-1873, with Introduction, Notes and Index by Charles R. Street. (New York, The Towns of Huntington and Babylon, New York: 1889), pp. 167-168.

7 See the Tax Rolls for Huntington, 1793, kept in the Town Historian's office in Huntington. Wortman owned only 250 pounds worth of real estate in Huntington, the land for the mill, all of which he sold to the Van Wycks. Van Wyck Junior was the son of Van Wyck Senior's brother, and married Van Wyck Senior's daughter. Thus, although they are often identified as Junior and Senior for clarity, they were not father and son.

8 Suffolk County Center, Riverhead, Long Island, New York. Liber D. p. 217, Book of Deeds.

9 Title Deeds in possession of Gwendolyn Gwynne DeClairville, Huntington, Long Island, New York.

10 The Lefferts Mill was not unique in this respect. Many other Long Island gristmills were capitalized in this manner, including the Hook Mill in East Hampton (HAER NY-105), which was sold in sixteenths, and the Amangansett Mill, which was sold in twentieths. In Packet L629, the Pennypacker Collection of Long Island History at the East Hampton Free Library in East Hampton, there are business records for the Amangansett Mill, explicating this practice.

11 All title deeds in the possession of Gwendolyn Gwynne DeClairville of Huntington, Long Island, New York.

Footnotes, cont'd.

[12]Albion, New York Port, pp. 80-81. There was another type of mill, a mercantile mill that would also custom mill for the farmers in the area. The Lefferts Mill may have operated in this fashion while owned by the Van Wycks. This is only a variant type of a mercantile mill. The Federal Censuses of Industry confirm that this type of mill existed, but they were almost always mercantile mills doing less than ten percent of their work in custom milling. See for example the Maidstone Mills, East Hampton, 1850-1870.

[13]Henry Onderdonck, "Farming in Olden Times in Queens County," Journal of Long Island History, 5 (Winter 1965), and "Farming in Olden Times in Suffolk County," 5 (Spring 1965). These articles were reprinted from an early nineteenth century work by Onderdonck.

[14]Francis Oakley, "The History of Huntington Township," a paper presented at a meeting of the Huntington Historical Society, March 17, 1919. Huntington Historical Society Collection, Huntington, New York.

[15]For Wortman, see footnote 4 above. Van Wyck Junior manumitted seven slaves between 1803 and 1813, and owned at least one other that he did not free, according to the Huntington Town Records, Volume 3, pp. 111, 187, 201, 240, and the manuscript entitled "Manumission of Slaves, 1799-" Town Historian's Office, Huntington, Long Island, New York. Van Wyck Junior died in 1852 possessed of 208 acres in Huntington, while Van Wyck Senior had about 2250 pounds in cash and property against about 500 pounds in debts when he died in 1809. Riverhead County Center, Riverhead, New York, Liber 5, p. 303, and Liber B, p. 555.

[16]Riverhead County Center, Mortgage Libers, Indexed by Mortgagor, Liber F, p. 46, Liber 30, p. 419, Liber N, p. 295, Liber M, p. 263, and others.

[17]See footnote 14.

[18]Title deed in the possession of Gwendolyn Gwynne DeClairville, Huntington, Long Island, New York.

[19]All title deeds in the possession of Gwendolyn Gwynne DeClairville, Huntington, Long Island, New York.

Footnotes, cont'd.

United States Department of Commerce. Manuscript for the Census of Industry, Suffolk County, New York: 1860: National Archives Microfilm.

[21] The mill was capable of grinding between thirty and sixty bushels of grain per day, probably much nearer the higher estimate than the lower. This figure is based on a later entry for this mill in the Federal Census of Industry, and William Carter Hughes, The American Miller, pp. 189-190.

[22] United States Department of Commerce, Manuscript for the Census of Manufactures, Suffolk County, New York: 1860: National Archives Microfilm.

[23] The mill is listed as having been run by one man.

[24] This may be explained by the fact that there were two runs of stones in the mill, each run perhaps grinding 30 bushels per day.

[25] Grain, not wheat. The mill was probably grinding both wheat and corn, for the census-taker wrote "wheat" under "Type of raw materials," then crossed it out and wrote "grain" above it. Also the mill produced 600 pounds of feed, which was not made from wheat, but from corn.

[26] 600 barrels of flour were worth $3,600 ($6 each) and 600 pounds of feed were worth $120 (Twenty cents per pound).

[27] The New York State Census for 1855 lists Huntington as producing 23,631 bushels of winter wheat in 1854 and 74,248 bushels of Indian Corn that same year for a total of 97,879 bushels of grain. In 1864, the town produced 23,930 bushels of wheat, and 69,462 bushels of Indian Corn, for a total of 93,392 bushels of grain. While there are no figures available for 1860, the average of these two years is 95,636 bushels of grain. The Lefferts Mill ground 7,500 bushels of this, or 7.842% of the total. [See the printed volumes of the New York State Census, entitled Census of the State of New York. (Albany, New York: Croswell, Van Benhuysen and Burt, 1856), pp. 302-303, (1866), pp. 346-347, (1876), pp. 382-383.]

[28] Using the same method for 1870, the average of the figures for 1864 and 1874 (22,048 bushels of wheat, 97,974 bushels of corn, 120,023 bushels total) is 106,708 bushels of grain. The Lefferts Mill ground 3,000 bushels, or 2.811% of the total. [Ibid.]

Footnotes, cont'd.

[29] United States Department of Commerce. Manuscript for the Census of Industry, Suffolk County, Long Island, New York, 1850-1870. Entries for East Hampton, Southampton, Port Jefferson, Setauket and Southold.

[30] Hughes, The American Miller, p. 189.

[31] United States Department of Commerce. Manuscript for the Census of Industry. Suffolk County, Long Island, New York, 1870-1880.

[32] Historic Huntington: 1653-1903. Published on the 250th anniversary of the Settlement of Huntington, Long Island, New York. July 4th, 1903, p. 41.

[33] Bidwell and Falconer, A History of Northern Agriculture, pp. 89-101. This trend is also evident in the New York State Censuses, (1826), p. 7, (1836) pages unnumbered, listed alphabetically as "Suffolk," (1846), pp. 49.1-49.2, (18S6) pp. 187, 302-306, 369, 424, (1876) pp. 379-387, 405-410.

[34] In order to appreciate the intricacies involved in settling disputes over riparian rights as they pertain to the operation of mills, see Joseph P. Angell A Treatise of the Common Law in Relation to Waterrights, 2nd edition, 1833.

[35] See manuscript Census of Industry, for 1860 and 1870.

[36] Kathleen S. Hoeft, Architectural Supervisor for the project, was a great help in preparing the information on the structure.

[37] This same system may be seen in the Eli Whitney barn, HAER CT-2A.

[38] For more on this, see John Fitchen, The New World Dutch Barn (Syracuse, New York: Syracuse University Press, 1968), p. 36.

[39] Hughes has a description of the general operation of a smutter as well as specific on various makes of smutters in The American Miller. See esp. pp. 121-122, 219-255.

[40] Reynolds gives a brief description of the automated mill of Oliver Evans in Windmills and Watermills, pp. 51-53. Oliver Evans himself gives a complete account in The Young Miller and Millwright's Guide, with Additions and Corrections by Thomas P. Jones (Philadelphia: Lea and Blanchard, 1850. Reprinted, Arno Press, 1972. Technology in Society Series, Daniel Boorstin, Advisory Editor.

Footnotes, cont'd.

41 It may have moved by archimedean screws, but that is doubtful (see Floorplans). Between the area on the second floor where the grain would have fallen and the cup elevator for the smutter, there are two drive shafts, a screener, a grist stone and a garner to interfere with the transport of the grain by machinery.

42 Rather than being screened and smutted, corn had to be shelled; that is, had to have the kernels separated from the cob. A machine that appears to be a homemade corn sheller that was perhaps driven off the shafting was found in the Lefferts Mill.

43 See floor plans for possible holes through which the cup elevator passed.

44 See Footnote 25.

45 See Evans, The Young Miller, p. 110, and Hughes, The American Miller, p. 70-73.

APPENDIX A
CHAIN OF TITLE

The following is an incomplete chain of title to the land whereon the Van Wyck (Lefferts) Tide Mill now stands, and to the mill itself. Reference is to the County Clerk's Office for Suffolk County, Riverhead, and to documents in the possession of Gwendolyn Gwynne DeClairville.

1793 — 1793 Entry in Huntington Tax Rolls. Land only.
Coles Wortman to Abraham Van Wyck and son-in-law, Abraham Van Wyck. 250 pounds.

1797 — Deed 2 May 1797 recorded in Liber D, page 217
Title for one-half the grist mill and appurtenances.
Abraham Van Wyck Senior to Abraham Van Wyck Junior. 250 pounds.

1798 — Deed 5 May 1798 in the possession of G. G. DeClairville.
Title for one-half of the grist mill and appurtenances. Also one-half of the twenty acre lot in West Neck whereon it stood and one-half of one other piece of land in Cold Spring Harbor that totaled six and one-half acres.
Abraham Van Wyck Junior to Samuel and Henry Lefferts.
2150 dollars.

1802 — Deed 2 March 1802 in the possession of G. G. DeClairville.
Title for one-quarter of the grist mill, one-quarter of the mill lot, and one-quarter the land in Cold Spring Harbor.
John Slessor to Daniel Whitehead Kissam. 1250 dollars.

1830 — Deed 28 October 1830 recorded in Liber 33, page 183.
Title for one-quarter of the grist mill, one-quarter of the mill lot, and one-quarter of the land in Cold Spring.
Jonathan and Elizabeth Smith to Daniel Whitehead Kissam.
1800 dollars.

1839 — Deed 12 June 1839 in the possession of G. G. DeClairville.
Also recorded in Liber 253, page 175.
Title for one-quarter of the grist mill, one-quarter of the mill lot, and one-quarter of the land in Cold Spring
Daniel Whitehead Kissam to Sarah and Phebe Sammis. One dollar.

Chain of Title, cont'd.

1842 Deed 30 April 1842 in the possession of G. G. DeClairville. Also recorded in Liber 233, page 35. Title for one-quarter of the grist mill, one-quarter of the mill lot, and one-quarter of the land in Cold Spring.
Samuel and William Kissam, executors for Daniel Whitehead Kissam to Jarvis Lefferts. 652 dollars.

1842 Deed 25 May 1842 in the possession of G. G. DeClairville. Also recorded in Liber 253, page 178. Title for one-quarter of the grist mill, one-quarter of the mill lot and one-quarter of the land in Cold Spring.
Anna Lefferts (widow of Samuel Lefferts) and Martha Lefferts (only child and heir of Samuel Lefferts) to Henry Lefferts. 1010 dollars.

1844 Will June 1844, executed November 1844. Recorded in Will Liber 4, page 289. Letters Liber B, page 30. One-quarter of the grist mill, mill lot and land in Cold Spring.
Henry Lefferts to Jarvis Lefferts (Son).

1844 Will June 1844, executed November 1844. Recorded in Will Liber 4, page 289. Letters Liber B, page 30. One-quarter of the grist mill, mill lot and land in Cold Spring.
Henry Lefferts to John and Theodore Lefferts (grandsons, minor children of John Lefferts, deceased. Jarvis Lefferts, guardian).

1844 Deed December 1844 in the possession of G. G. DeClairville. Also recorded in Liber 100, page 439. Title for one-quarter of the grist mill, one-quarter of the mill lot, and one-quarter of land in Cold Spring.
Phebe Sammis and Sarah Sammis to Jarvis Lefferts, miller. 675 dollars.

1850 Deed 30 September 1850 in the possession of G. G. DeClairville. Title for one-quarter of the grist mill "called Lefferts Mill," one-quarter of the mill lot, and one-quarter of the land in Cold Spring.
John and Theodore Lefferts to Jarvis Lefferts. 1300 dollars.

1882 Deed 3 July 1882 in the possession of G. G. DeClairville, also recorded in Liber 265, page 499. Title for the entire grist mill and mill lot.
Ebenezer C. Lefferts and Julia A. Sammis, heirs of Jarvis Lefferts, Melissa A. Lefferts, wife of Ebenezer Lefferts, and Sarah A. Lefferts, widow of Jarvis Lefferts to Willard A. Sammis. One dollar.

Chain of Title, cont'd.

1886 Deed 5 April 1886 in the possession of G. G. DeClairville. Title for the entire mill and mill lot. Willard W. Sammis and wife, Phebe, to Jenkins Van Schaick of New York City. 5000 dollars.

1893 Deed 1 July 1893. Recorded in Liber 399, page 533. Title for the grist mill and mill lot. Jenkins Van Schaick and Maria Van Schaick to Gertrude M. Van Schaick, wife of John B. Van Schaick.

1926 Deed 22 January 1926. Recorded in Liber 1168, page 518. Gertrude M. Wombwell (formerly Van Schaick) to Mildred Van Schaick Gwynne.

Mildred Van Schaick Gwynne to Gwendolyn Gwynne DeClairville, by will.

1969 Deed 30 December 1969. Recorded in Liber 6683, page 8. Gwendolyn Gwynne DeClairville to Nature Conservancy, Inc.